



---

A.D. 1815 . . . . . N<sup>o</sup> 3963.

---

S P E C I F I C A T I O N

OF

JEAN FREDERIC MARQUIS DE  
CHABANNES.

---

PNEUMATIC APPARATUS FOR PRODUCING  
CURRENTS OF AIR IN FLUES; APPARATUS  
FOR EVAPORATING AND COOLING FLUIDS;  
VENTILATION OF CHIMNEYS.

---

L O N D O N :

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY :

PUBLISHED AT THE QUEEN'S PRINTING OFFICE, EAST HARDING STREET,  
NEAR FLEET STREET.

*Price 7d.*

1854.







---

A.D. 1815 . . . . . N° 3963.

---

**Pneumatic Apparatus for Producing Currents of Air  
in Flues; Apparatus for Evaporating and Cooling  
Fluids; Ventilation of Chimneys.**

---

**THE MARQUIS DE CHABANNES' SPECIFICATION.**

**TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JEAN  
FREDERIC Marquis DE CHABANNES, send greeting.**

**WHEREAS** His present most Excellent Majesty King George the Third, did,  
by His Royal Letters Patent under the Great Seal of the United Kingdom of  
5 Great Britain and Ireland, bearing date at Westminster, the Fifth day of  
December, in the fifty-sixth year of His reign, give and grant unto me, the  
said Jean Frederic Marquis de Chabannes, my executors, administrators, and  
assigns, His especial licence, full power, sole privilege and authority, that I,  
the said Jean Frederic Marquis de Chabannes, my executors, administrators,  
10 and assigns, during the term of years therein expressed, should and lawfully  
might make, use, exercise, and vend, "**A METHOD OR METHODS OF CONDUCTING  
THE AIR AND REGULATING THE TEMPERATURE IN HOUSES AND OTHER BUILDINGS, AND  
WARMING AND COOLING EITHER AIR OR LIQUIDS IN A MUCH MORE EXPEDITIOUS AND  
CONSEQUENTLY LESS EXPENSIVE MANNER THAN HATH HITHERTO BEEN DONE WITHIN THIS**  
15 **KINGDOM, WHICH IS APPLICABLE TO VARIOUS USEFUL PURPOSES,"** within that part of  
the said United Kingdom called England, the Dominion of Wales, and Town  
of Berwick upon Tweed, and the Colonies and Plantations abroad, in such  
manner as to me, the said Jean Frederick Marquis de Chabannes, my executors,  
administrators, and assigns, should in our discretion seem meet, in which said  
20 Letters Patent is contained a proviso that if I, the said Jean Frederic Marquis de  
Chabannes, should not particularly describe and ascertain the nature of the  
said Invention, and in what manner the same is to be performed, by an instru-  
ment in writing under my hand and seal, and cause the same to be inrolled in



*De Chabannes' Improvements in Regulating the Temperature of Houses, &c.*

His Majesty's High Court of Chancery within two calendar months next and immediately after the date of the said Letters Patent, that then the said Letters Patent, and all liberties and advantages whatsoever thereby granted, should utterly cease, determine, and become void, as in and by the said recited Letters Patent, relation being thereunto had, may more fully and at 5 large appear.

**NOW KNOW YE**, that in compliance with the said proviso, I, the said Jean Frederic Marquis de Chabannes, do hereby declare that my method of conducting the air and regulating the temperature in houses and other buildings is by producing a current of air in flues or chimnies, or through a 10 tube or tubes, or other aperture or apertures, which is effected by means of the air pump or pneumatic machine hereafter described, forcing a current of air through every winding, or even thro' liquids, and also by means of the ventilator hereafter described, to be placed on the summit of the flue or chimney, which, by its peculiar form when the wind blows upon it, causes a 15 draught upwards in the flue or chimney more or less powerful according to the action or strength of the wind, but most powerful when the wind acts strongest. This ventilator is the part of the Invention protected by my Patent, which was communicated to me from abroad. No other method has hitherto been suggested of which I am acquainted for producing a current in chimnies 20 than that which is caused by the rarefaction of the air in its passage through the fire, the advantages of which method are not only limited, but a current so produced is subject to variation as often as a change happens in the direction or force of the wind, or in the temperature or density of the atmosphere; but my method is not liable to these accidental causes, and is invariable in its 25 effects, as the flues of chimnies or of ventilators are made to terminate in a reservoir on which I fix an air pump or pneumatic machine, by working of which a draught of air is produced in any proportion required without being liable to variation either from the state of the atmosphere or the wind; and lofty chimnies which are made so only for the purpose of procuring or increasing a 30 draught are rendered unnecessary, as this apparatus may be fixed either above or below or upon a level with the fire. In order to annihilate every nuisance or ill effect arising from smoke, I place in connection with the air pump or pneumatic machine employed for furnaces, or any kind of fire-place, a cistern of water, thro' which the smoke being forced by the action of the pump 35 becomes washed, and deposits in the water all the sooty and noxious particles usually carried into the atmosphere. The above-described principle of the ventilator is applicable to the ventilation of churches, prisons, hospitals, dwelling-houses, stables, and every other description of buildings appropriated



---

*De Chabannes' Improvements in Regulating the Temperature of Houses, &c.*

---

to the lodging of mankind or animals, or for any other cause requiring pure air, by the use of which health is less subject to injury, and the danger of epidemical diseases is greatly diminished. Another useful purpose to which the before-described air pump, and my method of warming and conducting  
5 air, may be applied, is to the heating of ovens, by surrounding them with flues acted upon by the said apparatus in the manner described in the annexed Drawing, Fig. 5; also for heating drying rooms, manufactories, greenhouses, and hothouses, by placing at proper distances in the flues already existing or newly made for the purpose boxes of air pipes, of which the construction is  
10 described in the annexed Drawing, Fig. 2. The above-mentioned ventilator (which, if used alone without the air pump or pneumatic machine, is a cure for smoky chimnies,) is formed of a tube of metal, burnt earth, or other suitable material; its opening or diameter is proportioned to the dimensions of the chimney, and it may be fixed in the usual method of fixing a common chimney  
15 pot, or where there is a pot already fixed, it may be placed on the top of the pot; around and close adjoining to the edge of the tube upon its summit there is a plane of between 40 and 50 degrees of inclination, so that the air striking upon it from any quarter of the winds is carried off in an oblique direction over the opening, by which means the pressure of the atmosphere being removed from  
20 off the column of air in the flue or chimney, a current of air is drawn thro' the flue or chimney into the open air. A similar inclined plane, but closed at the top, is fixed at a convenient distance above the first, which terminating in the form of a cone prevents any eddy winds from counteracting the effect of the lower plane. This upper plane may be placed  
25 or not as circumstances or situation may require, and the distance between the two planes, when both shall be used, is also to be determined by the locality. When there is a range of flues in one stack of chimnies, two or more of those flues may be united in the same ventilator. My method of warming air or liquids, and which is particularly applicable to the purposes of  
30 evaporation in order speedily to obtain the residuum or the chrystalisation of any matter suspended in liquids, and which admits of the use of various sorts of materials for boilers, as wood, brick, or metal, is by means of a moveable or fixed apparatus, either with or without the application of the air pump or pneumatic machine, and by the application of the reversed flame, immersed in  
35 the liquid. It is proper here to observe, that I do not claim the reversed flame or the air pump as parts of the Invention protected by my Patent, but merely the present methods of applying them. The furnace which I employ for heating boilers of all descriptions, as well as for warming air in churches, prisons, hospitals, dwelling-houses, &c., is another application of the reversed  
40 flame, and is described as under. The fuel is lodged on a heap of fire bricks



*De Chabannes' Improvements in Regulating the Temperature of Houses, &c.*

disposed in such a manner in a flue of the same or other suitable materials as to suffer the air to pass freely between them; beneath these bricks is placed a small grate for the purpose of receiving and consuming any part of the fuel which might fall thro' the space left between the bricks. This grate is furnished with an opening for the purpose of clearing the ash hole or lighting the 5 fire in case the air pump be not used; this opening is also calculated to admit fresh air to consume what may remain of the fuel, as well as to burn the gas which may have escaped combustion in its descent thro' the mass of bricks which are placed upon an open arch of the same or other proper materials so as to support the fuel on their summit; or in lieu of the above-described 10 furnace may be used the calorifere fumivore, for which I lately obtained Letters Patent. When the air pump or pneumatic machine is used for the purpose of forcing a current, the superficies of the object to be heated may be augmented to any extent, and the whole of the caloric produced by the fuel may be employed either on the liquid or on the air to be heated, as part of it being wanted to form a 15 current in the flues or chimnies. My method of cooling air is by means of the air pump and ventilator before described, either jointly or separately, causing the air to pass through a cool medium; and my method of cooling liquids is fully shewn in the annexed Drawing of the cooling apparatus, and the description thereof. From the above Specification, which I have endeavoured to make 20 as explicit as possible, I have no doubt but any scientific person will be able fully to understand the nature of my Invention; but as a further elucidation, I have annexed Drawings of the air pump or pneumatic machine, of the apparatus for heating and evaporating liquids, of the cooling apparatus, and of the ventilator; also of the method of heating ovens and hothouses, drawing rooms, &c; but in 25 giving these Drawings, I do not attach more importance to the exact forms therein shewn, or to the materials of which they are composed, than to any other capable of producing the same effects, as it is evident that the forms and materials may be varied in many ways according to the caprice of persons or the locality of the apparatus. 30

## EXPLANATION OF THE DRAWINGS.

Fig. 1 represents a pneumatic machine employed for forming a current of air, either in chimnies, or for the purpose of ventilation: *a*, plan of the pneumatic machine; *b*, plan of a cistern which is used when it is intended to wash the smoke; *c*, section of the pneumatic machine; *d*, section of the 35 cistern; *e*, pipe for the issue of the smoke after having been washed; *f*, pipe by which the smoke arrives at the cistern; *g, g, g, g, g*, partitions descending in the water, which, either pierced or made of wire work, separate and diffuse the smoke in its passage thro' the water; *h*, elevation of the end of the pneumatic 40



Fig. 2.

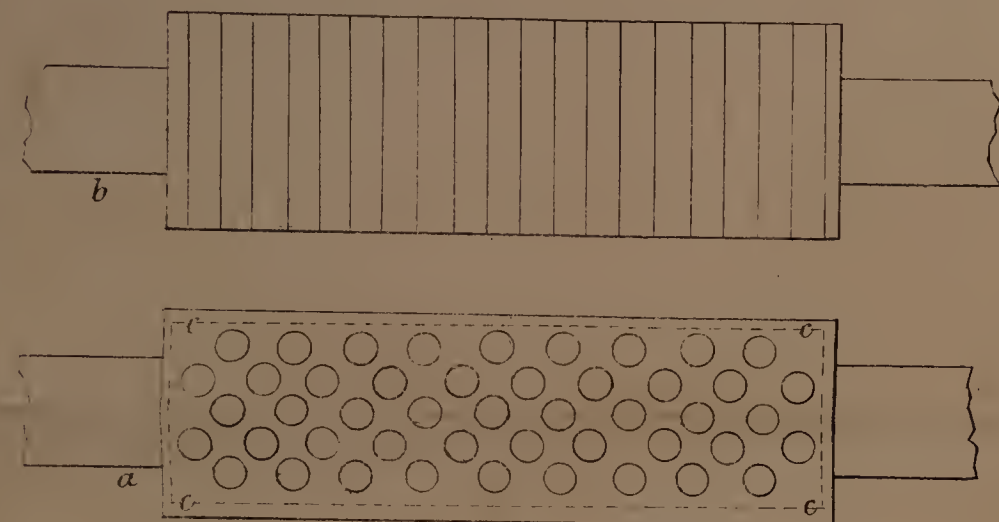


Fig. 6.

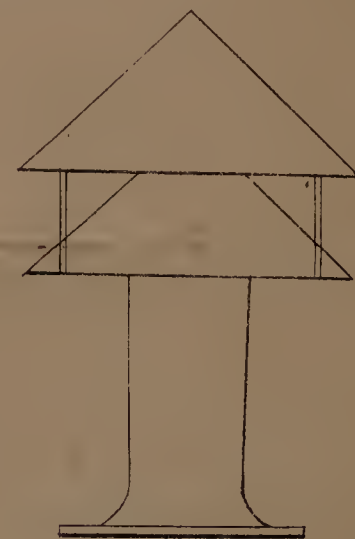


Fig. 7.

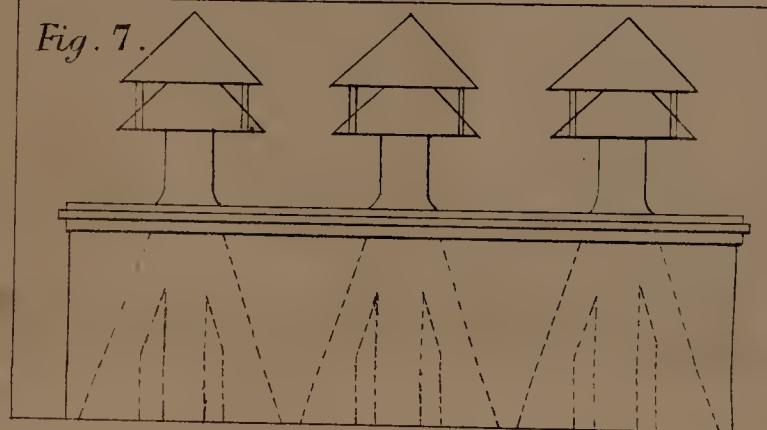


Fig. 5.

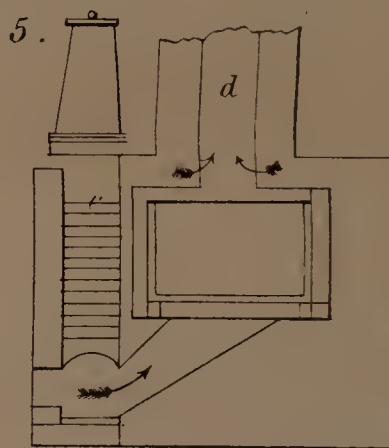


Fig. 4.

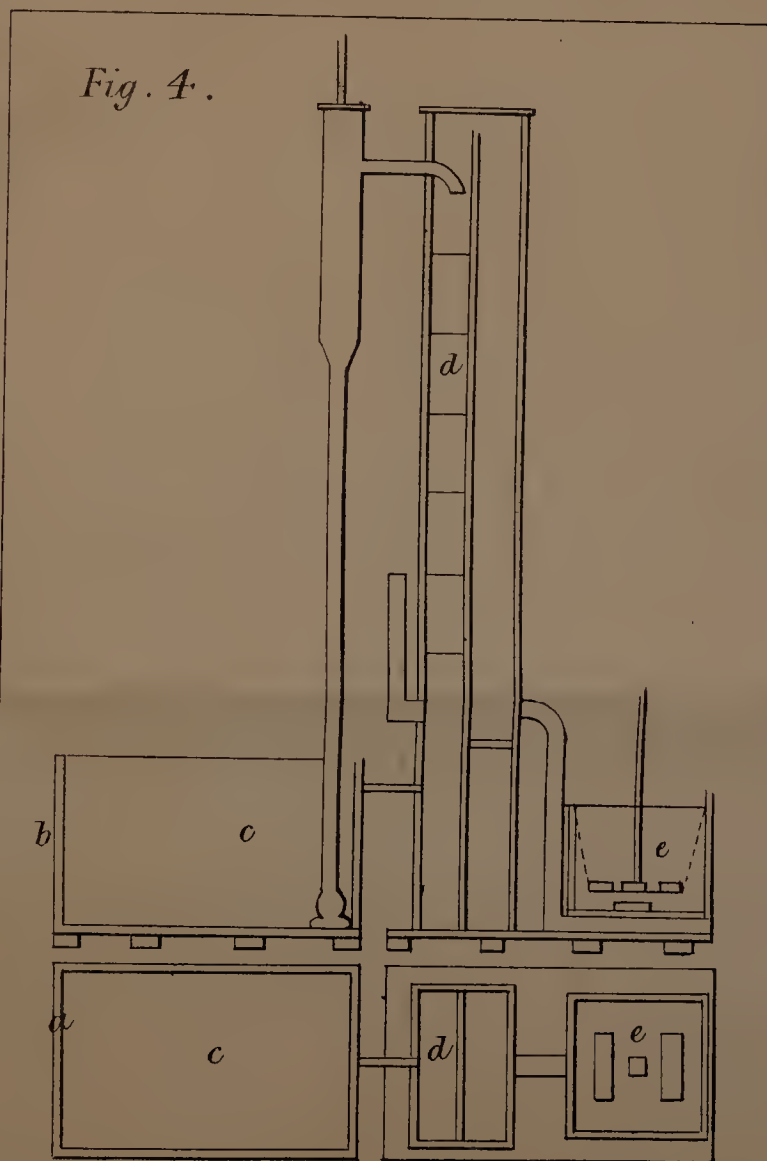


Fig. 3.

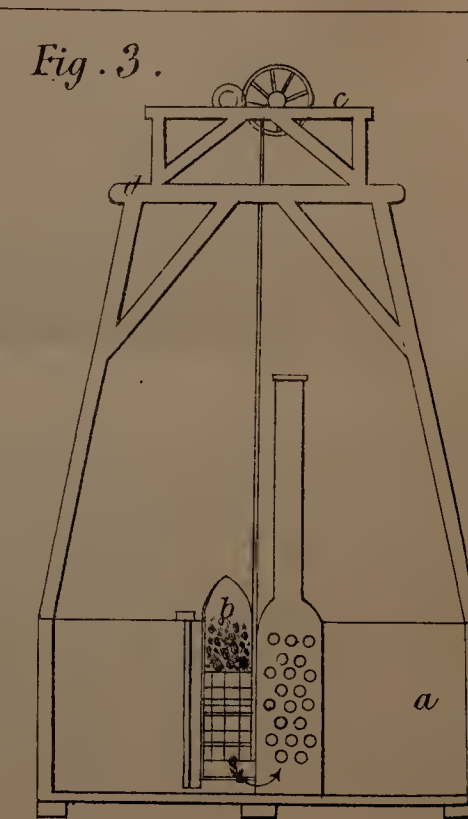
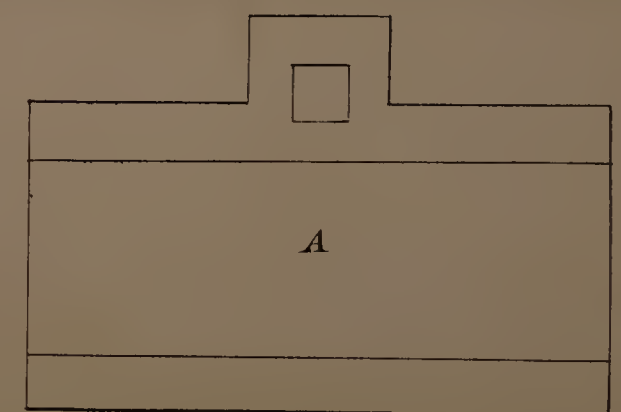
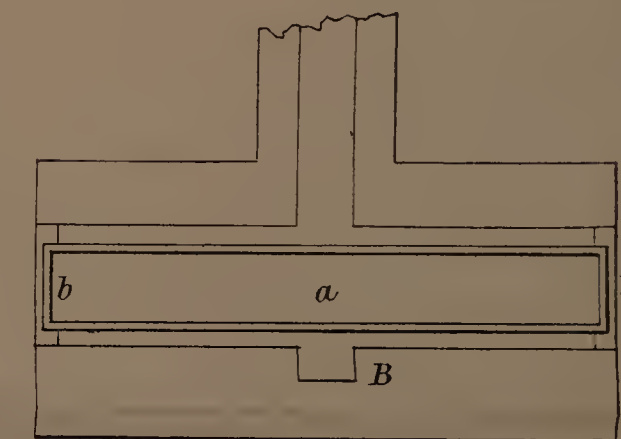
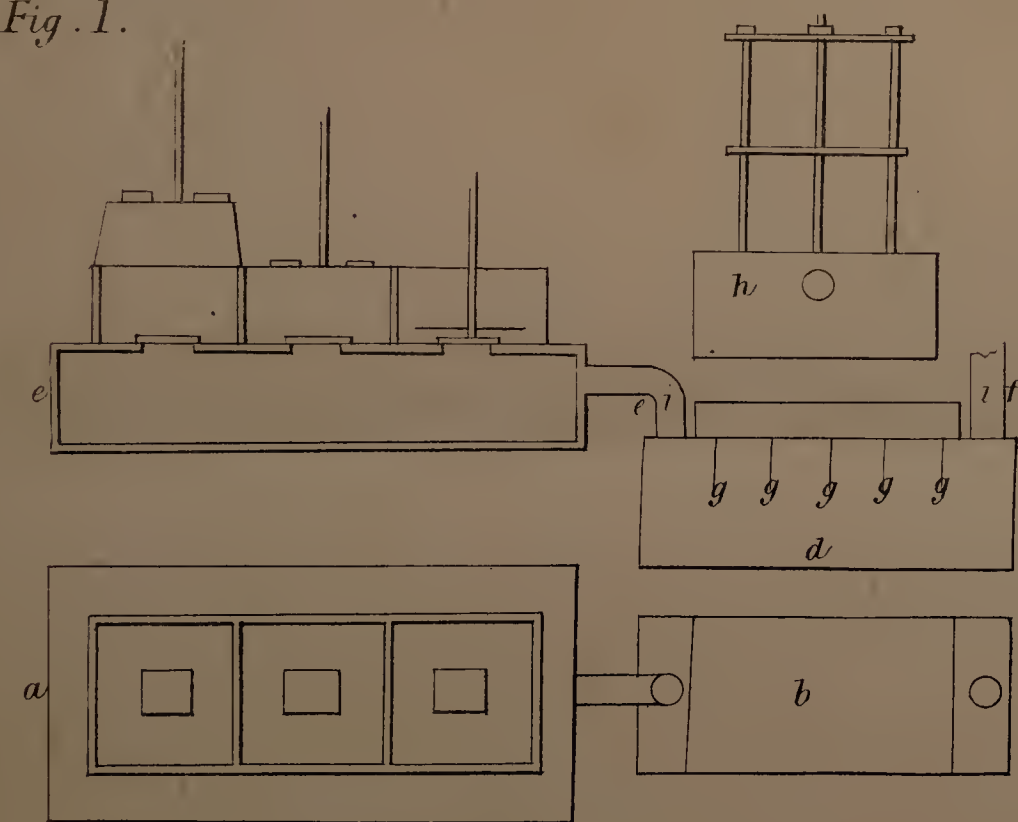


Fig. 1.







*De Chabannes' Improvements in Regulating the Temperature of Houses, &c.*

machine; *i, i*, level of the water. Fig. 2 represents a box of tubes intended to be placed at intervals in the flues of greenhouses, hothouses, or drying rooms, &c. : *a*, the plan; *b*, the section; *c, c, c*, the dotted line, represents a cover which is sunk in a groove at the top and bottom of the box filled with sand or other-  
 5 wise made air-tight; this cover is for the purpose of more easily getting at the pipes to clean them. Fig. 3 represents an apparatus for heating and evaporating liquids: *a*, the boiler; *b*, the furnace, moveable, and with the reversed flame for heating the liquid; *c*, crane for raising and lowering the furnace or for lifting up the furnace separately, for the purpose of either repairing or of  
 10 cleaning it; *d*, stage upon which the crane is fixed. Fig. 4 represents an apparatus for cooling liquids: *a*, plan of the machine; *b*, section in the height; *c, c*, the boiler, made of wood, metal, or any other materials; *d, d*, the cooler; the liquor thrown up by the pump is made to fall down the cooler, where it is intercepted and divided by a number of shelves made of wire or any other  
 15 materials pierced with holes to separate the liquid in its descent, so that falling in a shower it is met by a current of cold air forced in a contrary direction by the air pump marked *e, e*. This apparatus may be used without the air pump, and in that case the cooler is left open on all sides above the shelves that the air may circulate in the liquid while falling in a shower. Fig. 5 represents  
 20 the method of heating an oven by the reversed flame: *A*, the plan; *B*, the section in the length; *C*, the transverse section; *a, a*, the oven, made of metal or of earth; *b, b*, the doors of the oven; the bread or other thing to be baked being put on plates mounted on castors or rollers is shoved into the oven, and may be drawn out at the opposite end; *c*, the fire-place; *d*, the chimney.  
 25 Fig. 6 represents the chimney ventilator. Upon every occasion, either for ventilation or producing a current of air in chimnies when the air pump is not used, the ventilator is substituted in its place. In stables, in buildings of whatever description, and to whatever uses they may be applied, which are intended to be ventilated, this ventilator is placed on the summit of a tube  
 30 above the roof, which tube communicates at the other end with the place intended to be ventilated; they are multiplied or increased in dimensions as the capacity and situation of the building may require. Fig. 7 represents a chimney with nine flues surmounted by three ventilators, each one separately acting upon three flues.

35 In witness whereof, I, the said Jean Frederic Marquis de Chabannes, have hereunto set my hand and seal, this Fifth day of February, in the year of our Lord One thousand eight hundred and sixteen.

CHABANNES. (L.S.)



---

*De Chabannes' Improvements in Regulating the Temperature of Houses, &c.*

---

CAMPBELL.  
AND BE IT REMEMBERED, that on the Fifth day of February, in the fifty-sixth year of the reign of His Majesty King George the Third, the said Jean Frederic Marquis de Chabannes came before our said Lord the King in His Chancery, and acknowledged the Instrument aforesaid, and all and everything therein contained and specified, in form above written. And also the 5 Instrument aforesaid was stamped according to the tenor of the Statute made in the fifty-fifth year of His said Majesty's reign.

Inrolled the Fifth day of February, One thousand eight hundred and sixteen.

---

LONDON :

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty. 1854.